CLAIMS

1. An optical switch device comprising a plurality of optical elements mutually aligned along a common device optical axis, wherein the sequence comprises:
a multiple-fiber pigtail for coupling the device to multiple optical ports,
a collimating lens coupled to the pigtail such that optical signals associated with the multiple optical ports will all pass through the collimating lens,
a birefringent crystal,
a halfwave plate pair,
a switchable Faraday rotator,
a Wollaston prism, and
a mirror;
wherein the multiple optical ports comprise a first port and a second port,
wherein the switchable Faraday rotator selectively switches the device between a first state and a second state,
wherein the first state couples light between the first port and the second port, and the second state does not couple light between the first port and the second port.

2. The device of claim 1 wherein the multiple optical ports comprise a third port, wherein the second state couples light between the first port and the third port.

3. The device of claim 1 wherein a light ray entering the Wollaston prism parallel to the device optical axis is split by the Wollaston prism into two diverging light rays having complementary polarizations, where the diverging light rays have angles of at least 3 degrees relative to the device optical axis.

4. The device of claim 1 wherein light coupled between the first port and the second port of the multiple-fiber pigtail is collimated by the collimating lens both when entering the device through the first port and when exiting the device through the second port.

5. The device of claim 1 wherein an input optical beam entering the birefringent crystal parallel to the device optical axis is split by the crystal into a pair of optical beams having complementary polarizations, where the pair of optical beams exits the crystal parallel to the device optical axis.

6. The device of claim 5 wherein the halfwave plate pair rotates a polarization of at least one of the pair of optical beams so that the optical beams have a common polarization.

7. The device of claim 1 further comprising an electromagnet for switching the Faraday rotator, wherein the faraday rotator rotates the polarization of light passing through it by 90 degrees when the electromagnet is turned on, and wherein the Faraday rotator does not rotate the polarization of light passing through it when the electromagnet is turned off.